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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,120

12/15/2003

Boris Ginzburg

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EXAMINER

HOM. SHICK C

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

10/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/734,120

Applicant(s)

GINZBURG ET AL.

Examiner

Shick C. Hom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-40 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in

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order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-6, 10-16, 18-25, 28-32, 34-37, and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammons, Jr. et al. (2002/0165626) in view of Barlev et al. (7,133,441).

Regarding claims 1, 10, 13, 18, 20, 22, 28, 30, 34, and 39:

Hamons, Jr. et al. disclose an apparatus comprising
a frequency-multiplexing modem implementing a frequency-multiplexing modulation method;

a spatial-multiplexing modem implementing a spatial-multiplexing modulation method (the abstract recite a base station that is configured to transmit signal that is modulated according to a pre-determined modulation scheme and an frequency division multiplexing scheme in a radio communications system; paragraph 0088 recite the base station being quipped to generate space-time or space-frequency codes; and paragraph 0099 recite the use of the modem clearly anticipate the spatial-multiplexing and frequency-multiplexing modems, respectively).

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Regarding claims 2-3, 14-15, 23-25, 31-32, and 35-36:

Hamons, Jr. et al. disclose wherein said predetermined criterion comprises a comparison between a channel quality value and a predetermined reference quality value as in claims 2, 14, 23, 31, 35; and wherein said reference quality value comprises a minimum quality value as in claims 3, 15, 24-25, 32, 36

(paragraph 0038 recite comparing the probability of error versus the signal-to-noise ratio and determining the minimum value to take advantage of the space-time code, i.e. spatial-multiplexing reads on comparison between a channel quality value and a predetermined reference quality value as claimed).

Regarding claim 4:

Hamons, Jr. et al. disclose wherein said channel quality Value is related to one or more data frames previously received or transmitted by the apparatus (paragraphs 0044-0045 recite the use of previously received result for the construction of the space-time code).

Regarding claims 5, 21, and 29:

Hamons, Jr. et al. disclose wherein said channel quality value corresponds to a channel estimation related to said spatial multiplexing modem (paragraph 0071 recite the channel

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being approximated piece-wise clearly reads on channel quality value being an estimation).

Regarding claims 6, 11-12, 16, 19, 37, and 40:

Hamons, Jr. et al. disclose wherein said frequency-multiplexing modem comprises a multi-channel modem (paragraph 0011 recite the multi-channel system using frequency division multiplexing modulation; and paragraph 0099 recite the modem).

Regarding claims 1-6, 10-16, 18-25, 28-32, 34-37, and 39-40:

Hammons, Jr. et al. disclose all the subject matter of the claimed invention with the exception of a controller to select either said frequency-multiplexing modem or said spatial-multiplexing modem to modulate a signal based on a predetermined criterion as recited in claims 1, 13, 20, 28, and 34.

Barlev et al. from the same or similar fields of endeavor teach that it is known to provide a controller to select either said frequency-multiplexing modem or said spatial-multiplexing modem to modulate a signal based on a predetermined criterion (the abstract which recite optionally multiplexing the services using either TDM or FDM techniques including the use of a processor reads on the controller for selecting either modems).

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Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to use a controller to select either said frequency-multiplexing modem or said spatial-multiplexing modem to modulate a signal based on a predetermined criterion as taught by Barlev et al. in the communications apparatus and method of Hammons Jr. et al.

The controller to select either said frequency-multiplexing modem or said spatial-multiplexing modem to modulate a signal based on a predetermined criterion can be implemented by connecting the controller for selecting modems of Barlev et al. to the transmitter of Hammons Jr. et. al. The motivation for connecting the control for selecting modems as taught by Barlev et al. in the communication apparatus and method of Hammons Jr. et al. being that it provides the desirable added feature of dynamically selecting either said frequency-multiplexing modem or said spatial-multiplexing modem to modulate a signal based on a predetermined criterion in the transmitter.

4. Claims 7-9, 17, 26-27, 33, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammons, Jr. et al.

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(2002/0165626) and Barlev et al. (7,133,441) in view of Emilsson et al. (6,498,788).

For claims 7-9, 17, 26-27, 33, and 38, Hammons, Jr. et al. and Barlev et al. disclose the apparatus and method described in paragraph 3 of this office action. Hammons, Jr. et al. and Barlev et al. disclose all the subject matter of the claimed invention with the exception of wherein said multi-channel modem comprises channel access control modules assigned to individual frequency channels and single-input-single-output encoding modules to modulate data provided by the channel access control modules as in claim 7; single-input-single-output decoding modules as in claim 8; channel selection module to selectively control the assignment of channel access control modules to the individual frequency channels as in claims 9, 17, 38; and the step of periodically repeating said selectively modulating as in claims 27, 28, 33.

Emilsson et al. from the same or similar fields of endeavor teach that it is known to provide wherein said multi-channel modem comprises channel access control modules assigned to individual frequency channels and single-input-single-output encoding modules to modulate data provided by the channel access control modules (col. 4 line 65 to col. 5 line 14 recite the

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modem including the access function for controlling the radio data channel and encoding of the channel as in claim 7); single-input-single-output decoding modules (col. 8 lines 36-44 recite decoding module at the receiver as in claim 8); channel selection module to selectively control the assignment of channel access control modules to the individual frequency channels (the abstract recite control of the individual elements of the carrier network reads on control of the individual channels as in claims 9, 17, 38); and the step of periodically repeating said selectively modulating (col. 12 lines 57-58 recite periodical renegotiation of the service goal as in claims 27, 28, 33).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide wherein said multi-channel modem comprises channel access control modules assigned to individual frequency channels and single-input-single-output encoding modules to modulate data provided by the channel access control modules; single-input-single-output decoding modules; channel selection module to selectively control the assignment of channel access control modules to the individual frequency channels; and the step of periodically repeating said selectively modulating as taught by

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Emilsson et al. in the communications apparatus and method of Hammons, Jr. et al. and Barlev et al.

The multi-channel modem comprising channel access control modules assigned to individual frequency channels and single-input-single-output encoding modules to modulate data provided by the channel access control modules; single-input-single-output decoding modules; channel selection module to selectively control the assignment of channel access control modules to the individual frequency channels; and the step of periodically repeating said selectively modulating can be implemented by connecting the multi-channel modem including channel access control modules assigned to individual frequency channels and single-input-single-output encoding modules to modulate data provided by the channel access control modules; single-input-single-output decoding modules; and channel selection module to selectively control the assignment of channel access control modules to the individual frequency channels and the step of periodically repeating said selectively modulating of Emilsson et al. to the modulator of Hammons, Jr. et al. and Barlev et al.

The motivation for using the multi-channel modem as taught by Emilsson et al. in the communication apparatus and method of Hammons, Jr. et al. and Barlev et al. being that it provides

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more efficiency for the system since the system can better manage and control the radio resource in the system.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C.

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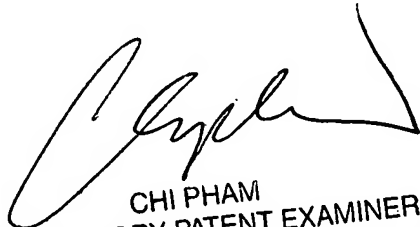
Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pham Chi can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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CHI PHAM
SUPERVISORY PATENT EXAMINER

10/1/07